

AMENDMENTS

In the claims

Please cancel claims 9 and 17-22.

Claim 1. (currently amended) An apparatus for the printing of functional toners on a flat glass plate, said apparatus comprising:

an electrostatic printing plate (10) including a polymer layer (52) bonded to an electrically conducting substrate (54) that is electrically grounded;

a first corona unit means (12) for electrically charging said electrostatic printing plate with ions from a corona discharge thereby sensitizing it and defining charged and uncharged areas;

a liquid development unit (16) which is electrically biased to deposit functional toner (~~50~~ **45**) having toner particles on said uncharged areas of said electrostatic printing plate;

a transfer station ~~(27)~~ ~~(25)~~ in which said flat glass plate (26) is moved into close proximity to said electrostatic printing plate (10), but not touching, forming a mechanical gap (42);

means (25) for ~~filling~~ filling the mechanical gap between said electrostatic printing plate and said glass plate with a clear toner diluent ~~[(44)]~~ **(51)**; and,

a second corona unit means (30) located near said glass plate (26) but away from said electrostatic printing plate (10) and which is electrically connected to a high voltage power supply (31) for creating a corona discharge which sprays free charges on said glass plate (26) and which creates an electrical field (~~23~~ **62**) that causes said toner particles ~~(45)~~ ~~(48)~~ to transfer across the fluid filled gap (42) in an orderly manner.

Claim 2. (currently amended) The apparatus of claim 1 further comprising;

mechanical adjustment capability means located on said ~~transferred~~ second corona unit **(30)** including mechanical shutters (32) for controlling the exact

position where toner migration from said printing plate (10) to said **flat** glass plate (26) occurs;

cleaning unit means (36) for removing residual toner particles from said printing plate (10);

a drying station (27) where warm air is provided to dry said **flat** glass plate after imaging; and,

support means (28) for supporting said **flat** glass plate (26) on it's edges so that said free charges in said glass tightly bind toner particles to the surface of said **flat** glass plate (26) after transfer.

Claim 3. (previously presented) The apparatus of claim 1 further comprising:

positive phototool means 14 for exposing said electrostatic printing plate to actinic radiation in order to cross-link elements of said printing plate (10) which will not be imaged (53) and leaving unexposed elements not cross-linked.

Claim 4. (currently amended) The apparatus of Claim 1 wherein said uncharged areas **(55)** of said printing plate (10) develop said toner particles **(58)**.

Claim 5. (currently amended) The apparatus of Claim 4 wherein the polarity of said corona ions is identical to that of the toner particles in the liquid toner (50 **45**).

Claim 6. (currently presented) The apparatus of Claim 1 wherein said **liquid** development unit (16) includes an electrode (18, 22) which is electrically biased to a value approximately equal to the charged voltage of said printing plate (10).

Claim 7. (currently amended) The apparatus of Claim 1 wherein said ~~receiving~~ **flat** glass plate (26) is dried of excess liquid (51) at said drying station (27) by air (27) at substantially room temperature which is blown thereover to partially fix said toner.

Claim 8. (original) The apparatus of Claim 1 wherein said toner comprises at least three functional particle toners.

Claim 9. (cancelled)

Claim 10. (currently amended) An apparatus (134) for the printing of functional toners on a flat glass plate, said apparatus comprising:
a flat electrostatic printing plate (102,~~134~~) including a polymer layer (52) bonded to an electrically conducting substrate (54) that is electrically grounded;
a first corona unit means (~~114~~ 110) for electrically charge said flat electrostatic printing plate (102) with ions from a corona discharge thereby sensitizing it and defining charged and uncharged areas;
a liquid development unit (112) which is electrically biased to deposit functional toner particles on said uncharged areas of said flat electrostatic printing plate (102);
a reverse roller unit (120) means for mechanically removing excess diluent liquid from the developed plate (102);
a depress corona (122) to compact the toner particle pile before transfer;
a transfer station (124) in which said flat electrostatic printing plate (102) is moved in close proximity to a flat receiving glass plate ~~substrate~~ (~~132~~ 130);
means (140) for filling the mechanical gap (142) between flat printing plate (102) and flat receiving glass plate (130) with clear toner diluent; and,
a second corona unit means (128) located near said glass plate (130) but away from said electrostatic printing plate (102) which is electrically connected to a high voltage power supply for creating a corona discharge which sprays free charges on said glass plate (130) and which creates an electrical field that causes said toner particles to transfer across the fluid filled gap in an orderly manner.

Claim 11. (currently presented) The apparatus of Claim 10 further comprising;
electronic control mean (150) for providing adjustable time delays between each step of the process to achieve optimum image quality; and,

means more resistive than the glass plate (130) ~~(124)~~ for supporting said glass plate (130) ~~(124)~~ on its edges so that said free charges in said glass (130) ~~(124)~~ tightly bind toner particles on the surface of said glass plate after transfer, without distortion due to edge charge leakage.

Claim 12. (previously presented) The apparatus of claim 10 wherein the diluent fluid filling the gap (142) has an electrical conductivity from 0.15 to 100 pico siemens per centimeter.

Claim 13. (currently amended) The apparatus of Claim 10 wherein said printing plate (102) comprises a reimagable photoreceptor plate ~~(134, 102)~~, comprising an amorphous selenium layer, which is sensitized by a corona discharge (110) and imaged by an optical means (111) for imaging said sensitized amorphous selenium layer.

Claim 14. (currently presented) The apparatus of Claim 10 wherein toner (203) is transferred to said glass plate (130, 201) ~~(200)~~ and the toner image (203) is dried with warm air to partially set the resin coating the glass particles and wherein successive layers of toner (203) build up a structure of a predetermined height.

Claim 15. (currently presented) The apparatus of Claim 10, wherein a palladium catalytic toner (224) is imaged on a relieved, or ribbed, glass plate (130, 201) ~~(200)~~ and subsequently plated with a metal to generate an electrode structure (204).

Claim 16. (currently presented) The apparatus of Claim 10 wherein a phosphor particle toner (230) is printed in a manner to coat a relieved structure (240) ~~(230)~~ with a ~~ribbed~~ ~~(202)~~ glass plate (130, 201) ~~(200)~~ having ribs (202) and electrode structures (204) between said ribs (202).

Claim 17 - 22. (cancelled)